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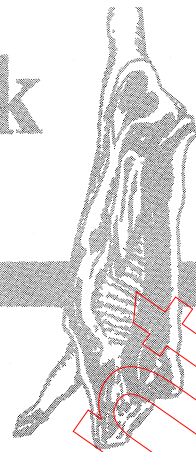
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Pigs to Pork



SELECTION

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Selecting the Boar

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In selecting animals for replacements in the breeding herd, much emphasis should be placed on selection of sires. They leave a larger number of offspring in their lifetime than do the females. In a one-boar herd, he is responsible for one half the inheritance of all the offspring produced. For this reason a mistake in the selection of the boar can greatly handicap a breeding program.

Perhaps the most difficult, and certainly the least understood, problem of the swine industry is how to maintain high productivity in the breeding herd through successive generations. To improve the productive capacity with each successive generation, adds to this difficulty. There is no certain mark or set of visible characteristics to distinguish highly productive boars from those of lesser productivity. Neither is there a visible means to gauge in advance how well a boar will nick with a given sow herd. Yet a continually improving high level of breeding performance is essential to the profitable operation of the swine enterprise producing market hogs or seed stock.

BREEDING--SCIENCE AND ART

Improving hogs through successive generations is both a science and an art. Genetic research work since 1900 has added greatly to man's knowledge of the mechanism by which specific characteristics are transmitted from one generation to the next. These results have given the knowledgeable breeder

considerable control over some aspects of his work. For example, now swirls, certain defects such as hernia, cryptorchidism, and certain color abnormalities are explainable and controllable by the breeder.

Geneticists' studies at various Agricultural Experiment Stations indicate that an increase of 10 to 20 percent in overall performance can result by using a systematic crossbreeding program as compared to the production of straight bred pigs under the same conditions.

Crossbred pigs usually show more vigor and growthiness than their purebred parents. The largest benefit seems to result from the crossbred sow. Research indicates that in addition to increased overall production of the offspring, the use of the crossbred sow results in better reproductive rates and improved mothering ability. These advantages in increased performances are collectively referred to as "heterosis" or "hybrid vigor".

Heritability estimates have been determined for many of the economically important traits regarding type, conformation, and carcass characteristics; as well as for the productive aspects of rate of gain and feed utilization and reproductive efficiencies. By application of these technologies, the breeder can improve along well defined paths with predictable results.

The reproductive physiologists have added another wealth of information explaining body functions and how they relate to reproduction to insure maximum fertility and maximum opportunity for selection.

These scientific contributions are additional tools which the breeder has at his hand to use in the building of a continually improving herd. These tools supplement, not replace, his "art" tools which have been used for centuries.

There is an indescribable art in selecting boars which when mated to the given sow herd will contribute to the continual improvement through successive generations. The old adage "like begets like" developed from the artisan's intimate acquaintance with various strains and long-time study of how characteristics reappear in offspring. Recognition of prepotency is also a part of the art. Thoughtful breeders develop a "sixth sense" in estimating probable breeding performance. Underlying all of this is a clear conception of the characteristics which contribute to the usefulness of the animal in their herd.

Use More Tools

The use of additional tools in selecting the boar can assist in the building of a continually improving herd. Over a period of time you could build a usable hog house by using only a hatchet and logs. A more usable hog house can be built in less time by using additional tools such as a sheet of plans, hand saw, square, level, plumb, miter box, hammer, nails and dimension lumber. Use the additional tools supplied by the geneticists and reproductive physiologists along with the art of husbandry for a most rewarding result.

The choice of individual tools to be used will logically vary according to current production levels, and to desired rate of improvement. It takes a more refined set of tools, more patience, more care, more application of skill for finishing-carpentry than for framing-carpentry.

Start Where You Are

One of the most important things a producer can do is to put some real pres-

sure on the selection of the boar to assist in the building of a continually improving herd. This involves two things--RECORDS and GOALS or standards.



Figure 1. Accurate records are essential in any selection program. Brood sow productivity, gainability, feed conversion and carcass quality are all necessary information to establish "bench marks" for future improvement.

Keep simple records on (1) brood sow productivity, (2) gainability (3) feed conversion and (4) carcass quality. With these records you can establish a "bench mark" of the current level of production and measure the improvement made at various points of time. Also you can establish goals of production and the desired rate of improvement.

Make the standards realistic. Hogs which can't make a 200 pound market weight in 175 days under good conditions just don't have a place on the modern hog farm. The carcasses of the market hogs should be meaty with an acceptable minimum of backfat. Large litters of big pigs farrowed and raised to heavy weaning weights mark the real purpose of the sow herd.

USE PRODUCTION TESTING INFORMATION

Production testing information can mean many additional dollars to you. The data customarily gathered in production testing programs include measures of brood sow productivity, rate of gain, feed conversion and carcass quality. These are heritable traits.

How can a pork producer use heritability information? Here is an example. If the average feed conversion for the herd is 4

pounds of feed per pound of gain and the boar selected has a feed conversion of 3, the selection differential would be 1. Half of the difference is contributed by the boar and half by the sow herd. Since feed efficiency is 38 percent heritable, 38 percent of the difference contributed by the boar would be expected in the pigs. Or, in this case, a saving of 0.19 pound of feed per pound of gain. While this increase doesn't sound very big at first, remember that about 54,000 pounds of gain are put on the pigs from 20 sows each year. This is a saving of more than 10,000 pounds of feed per year. At 3 cents per pound of feed this means a saving of more than \$300.00 per year--more than a dollar a pig each year.

Similarly a dollar sign can be "hung" on each of the other traits, as well.

Production testing information is a must. Production testing information is available in many forms. In fact, with all the new innovations used in testing, the boar



Figure 2. Amount of feed fed and pounds of feed per hundred pounds of pork produced are important items to every hog man. Feed conversion and all other selection characteristics are extremely important when selecting a herd sire because he is responsible for one half of the inheritance of all the offspring produced.

buyer needs to know what he is doing when he goes out looking for the sire of his next pig crop.

Although testing is a rather general word, it should not be considered in a general way. Testing results must be interpreted according to the methods used to obtain the information. Some points to consider are:

1) Where tests were made. Pigs in test stations are fed in small pens with only two to four pigs per pen. The environment is generally good for growth and efficiency. Hence the pigs there usually out perform littermates at home. By the same token oftentimes they are somewhat fatter than pigs at home.

2) The ration fed. Fullfed, high energy rations generally produce a fatter carcass than limited-fed or bulky rations. Purdue data show that limited-fed pigs had about 0.15 inch less backfat with slightly more feed required per pound of gain. Pasture reduces concentrate required per pound of gain.

3) Sex of test pigs. Gilts, at 205 pounds, are about 10 days older, are about 0.25 inch longer, have about 0.13 inch less backfat, and have about 0.50 square inch more loin eye area than do barrows. Boars are heavier, longer, and leaner than littermate gilts.

4) Age of pigs on test. As pigs get older their bodies accumulate a higher proportion of fat to lean. There is $2\frac{1}{4}$ times as much energy in a pound of fat as in a pound of lean. Records at the Indiana Swine Evaluation Station show that pigs from 64 days of age to 120 pounds require about 0.94 less feed per pound of gain than from 120 pounds to 205 pounds.

Interpret the production test data with common sense and use them as guides. They are keys to a successful future.

USE YOUR SELECTION

Use as many of the adopted genetic standards of independent culling levels as is feasible. Then consistent with the current level of production and the desired rate of improvement, a selection index can be determined. This index should include values for brood sow productivity, gainability, feed conversion and carcass quality. Determine how much weight to give each factor by deciding how important each factor is to you. With this new tool the field of prospective herd sires can be lined up, each according to his numerical genetic value. Eliminate all but the 10 or 12 top scoring boars from further consideration.

NOW SELECT THE BOAR

Rely heavily on the art of husbandry. Select from the field of candidates the boar which most nearly fits the concept of the characteristics which contribute to the usefulness of the boar in the herd. Here are

some things to look for in a good boar prospect:

- Satisfactory length, not too extreme but longer than the market barrows expected.
- A good topline, trim underline, uniform width from front to rear.
- A well-sprung rib with width in his chest floor.
- Rugged bone, not coarse, and sound feet and legs set with one on each corner so he walks away straight and proud.
- A real "he" boar with masculinity written all over him.

Another factor of considerable importance should be the consideration of herd health. Never buy a boar not tested for brucellosis and leptospirosis. Many profit-sharing diseases and parasites can be introduced into your herd by a boar from a contaminated herd. Be alert.



Figure 3. Your prospective herd sire should be moderately long, well muscled, growthy and stand ruggedly on sound feet and legs.